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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,201	07/16/2003	Ronald J. Kelley	CM01568LD01	1076

7590 04/06/2004  
Randi L. Dulaney  
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EXAMINER

JACKSON, ANDRE K

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/621,201

Applicant(s)

KELLEY ET AL.

Examiner

André K. Jackson

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hockaday in view Hampo et al.

Regarding claim 1, Hockaday discloses in "Surface replica fuel cell for micro fuel cell electrical power pack" a fuel cell (12,69,117,126) capable of operating on hydrogen that is obtained from methanol (Columns 16-17, lines 65-67 through 1-15), a reservoir for storing a supply of methanol (Figure 13). What is not disclosed by Hockaday is where the fuel quantity measuring means is located within the reservoir; where the fuel quantity measuring means is an immersion capacitive unit and where the immersion capacitive unit includes a plurality of pairs of plates in more than one location within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit

produced using the dielectric. However, Hampo et al. disclose in "Fluid level sensing system" where the quantity measuring means is located within the reservoir; where the quantity measuring means is an immersion capacitive unit and where the immersion capacitive unit includes a plurality of pairs of plates in more than one location within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric (Figure 1). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to modify Hockaday to include where the quantity measuring means is located within the reservoir; where the quantity measuring means is an immersion capacitive unit and where the immersion capacitive unit includes a plurality of pairs of plates in more than one location within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric. By adding this feature the artisan would be able to accurately detect the amount of liquid in the fuel cell.

Regarding claim 2, Hockaday discloses a fuel cell (12,69,117,126) capable of operating on hydrogen that is obtained from a liquid hydrocarbon fuel (Columns 16-17, lines 65-67 through 1-15), a reservoir for storing a supply of liquid hydrocarbon fuel (Figure 13). What is not disclosed by Hockaday is where the fuel

quantity measuring means is located within the reservoir; where the fuel quantity measuring means is an immersion capacitive unit where the immersion capacitive unit includes a plurality of pairs of plate placed in more than one location within the reservoir and includes electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric. However, Hampo et al. disclose where the quantity measuring means is located within the reservoir; where the quantity measuring means is an immersion capacitive unit and where the immersion capacitive unit includes a plurality of pairs of plates in more than one location within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric (Figure 1). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to modify Hockaday to include where the quantity measuring means is located within the reservoir; where the quantity measuring means is an immersion capacitive unit and where the immersion capacitive unit includes a plurality of pairs of plates in more than one location within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric. By adding this feature the artisan would be able to accurately detect the amount of liquid in the fuel cell.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hockaday in view Pope.

Regarding claim 1, Hockaday discloses a fuel cell (12,69,117,126) capable of operating on hydrogen that is obtained from methanol (Columns 16-17, lines 65-67 through 1-15), a reservoir for storing a supply of methanol (Figure 13). What is not disclosed by Hockaday is where the fuel quantity measuring means is located within the reservoir; where the fuel quantity measuring means is an immersion capacitive unit and where the immersion capacitive unit includes a plurality of pairs of plates in more than one location within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric. However, Pope discloses in "Liquid level and volume measuring method and apparatus" where the fuel quantity measuring means is located within the reservoir; where the fuel quantity measuring means is an immersion capacitive unit and where the immersion capacitive unit includes a plurality of pairs of plates in more than one location within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric (Figure 1). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to modify Hockaday to include where the fuel quantity measuring means is located within

the reservoir; where the fuel quantity measuring means is an immersion capacitive unit and where the immersion capacitive unit includes a plurality of pairs of plates in more than one location within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric. By adding this feature the artisan would be able to accurately detect the amount of liquid in the fuel cell.

Regarding claim 2, Hockaday discloses a fuel cell (12,69,117,126) capable of operating on hydrogen that is obtained from a liquid hydrocarbon fuel (Columns 16-17, lines 65-67 through 1-15), a reservoir for storing a supply of liquid hydrocarbon fuel (Figure 13). What is not disclosed by Hockaday is where the fuel quantity measuring means is located within the reservoir; where the fuel quantity measuring means is an immersion capacitive unit and where the immersion capacitive unit includes a plurality of pairs of plate placed in more than one location within the reservoir and includes electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric. However, Pope discloses where the fuel quantity measuring means is located within the reservoir; where the fuel quantity measuring means is an immersion capacitive unit and where the immersion capacitive unit includes a plurality of pairs of plates in more than one location

within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric (Figure 1). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to modify Hockaday to include where the fuel quantity measuring means is located within the reservoir; where the fuel quantity measuring means is an immersion capacitive unit and where the immersion capacitive unit includes a plurality of pairs of plates in more than one location within the reservoir that includes an electrical circuitry for measuring a capacitance value of the immersion capacitive unit produced using the dielectric. By adding this feature the artisan would be able to accurately detect the amount of liquid in the fuel cell.

### ***Response to Arguments***

4. Applicant's arguments filed 03/12/04 have been fully considered but they are not persuasive. Applicants' representative has argued that the Examiner did not provide any patent numbers to distinguish between the two references with the same inventor, Hockaday et al. Applicants' representative supplied a partial quotation from the rejection: "claim 1 states that 'Hockaday discloses ... 'a fuel cell (12) capable of operating on hydrogen that is obtained from methanol (Column 16)". The actual rejection reads: Hockaday



discloses in "Surface replica fuel cell for micro fuel cell electrical power pack". The Applicants' representative mistakenly replaced the title "Surface replica fuel cell for micro fuel cell electrical power pack" with "... " in the reproduction of the rejection, which distinguishes the two patents with identical inventors (Hockaday) from each other. The Examiner admits that it is a tedious task in writing the entire title of the patent as opposed to writing the six or seven character patent number. However, this title further distinguishes the references since mistakes regarding omission and transposition of numbers are made from one party or another.

Applicants' presumption of the reference was correct.

Applicants have argued that the "vague and ambiguous" reference to column 16 in Hockaday as teaching a fuel cell operating on hydrogen obtained from methanol is false. The Examiner partially

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agrees with the Applicants. What was omitted in the rejection was Column 17, more specifically (Columns 16-17, lines 65-67 through 1-15).

In response to the Applicants assertion of "vague and ambiguous" rejections: Hockaday discloses in Figure 13 a fuel tank (119) with the description of Figure 13 found in Column 4, more specifically Column 4, lines 65-67 and Column 11 and more specifically Column 11, lines 3-28. In column 11, lines 14-17 it is disclosed

where the tank (119, Figure 13) is filled with methanol, which is well known as a hydrocarbon fuel.

Applicants have disclosed that the rejection was "vague and ambiguous" more specifically arguing the fact of just stating a figure instead of column and line numbers. However, it is noted that the Applicants did find the meaning of the rejection and argue that the reference did not teach the claimed invention from such a "vague and ambiguous" rejection. Meanwhile, Applicants have stated that (119, tank, Figure 3) could not be a reservoir since a needle punctures the tank. Applicants have supplied a definition of a reservoir and the Examiner appreciates this. When applying the supplied definition of reservoir to the claim: 1) a place where something is kept in store. The tank (119) of Hockaday stores methanol as stated in Column 11, lines 14-17. 2) part of an apparatus in which liquid is held. The tank (119) of Hockaday certainly holds the liquid as suggested in Column 11, lines 14-17. The Examiner agrees that Hockaday discloses where the tank is punctured by a needle (115); on the other hand, Applicants seem to be suggesting that since there is a puncture or an opening to make a fuel connection that Hockaday's tank cannot be a reservoir. It should be noted that the Applicants' invention has an opening where an immersion capacitive unit can be placed. In viewing the

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Applicants' arguments, the claimed reservoir would also not be a reservoir.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone number is (571) 272-2196. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A.J.

March 31, 2004

  
HEZRON WILLIAMS  
SUPERVISORY PATENT EXAMINER  
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